PATENT
Docket No.: **20959/1611 (P 56392)**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) :	Norbert Moszner, André Rumphorst, Volker Rheinberger, and Frank Zeuner	)	Examiner: To Be Assigned
Serial No. :	To Be Assigned	)	Art Unit: To Be Assigned
Cnfrm. No. :	To Be Assigned	)	
Filed :	Herewith	)	
For :	HYDROLYSIS-STABLE AND POLYMERIZABLE ACRYLOPHOSPHONIC ACID	)	

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231
Box: PATENT APPLICATION

Dear Sir:

Please amend the above-identified patent application as follows:

In the Specification:

In the first line of the specification following the title, please insert the following paragraph:

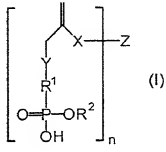
This application claims the benefit of U.S. Provisional Patent Application No. 60/250,698, filed December 1, 2000, which is herein incorporated by reference in its entirety.

In the Abstract:

Replace the Abstract with the following section:

Abstract

Hydrolysis-stable and polymerizable acrylophosphonic acid with the general formula (I)



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which is particularly suitable as a component of dental materials is disclosed.

In the Claims:

Please replace pending claims 2-11 with amended claims 2-11 as follows:

2. (Amended) Acrylophosphonic acid according to claim 1, wherein the variables of formula (I) have the following meanings independently of each other:

R^1 = a linear or branched C_1 to C_5 alkylene radical of phenylene;

R^2 = hydrogen or a linear C_1 to C_3 alkyl radical;

Y = oxygen or is absent;

X = CN or $CONR^3$ with

R^3 = hydrogen, a linear C_1 to C_6 alkyl radical, a phenyl radical or together with Z part of a six-membered ring;

n = 1 or 2; and

Z = hydrogen or a linear or branched C_1 to C_{10} alkyl radical, a phenyl radical or together with R^3 part of a six-membered ring (for n = 1); or

Z = a linear C_1 to C_{10} alkylene radical or together with R^3 part of a six-membered ring (for n = 2).

3. (Amended) Acrylophosphonic acid according to claim 2, wherein the variables of formula (I) have the following meanings independently of each other:

R^1 = a linear C_1 to C_4 alkylene radical;

R^2 = hydrogen or a methyl radical;

Y = oxygen;

X = $CONR^3$;

R^3 = hydrogen or a linear C_1 to C_5 alkyl radical; and

Z = hydrogen or a linear C_1 to C_6 alkyl radical (for n = 1); or

Z = a linear C_1 to C_5 alkylene radical (for n = 2).

4. (Amended) Acrylophosphonic acid according to claim 1, wherein the radicals R^1, R^2, R^3 and/or Y are unsubstituted.

5. (Amended) Acrylophosphonic acid according to claim 1, wherein the radical Z is unsubstituted or is substituted by =O, =S, =NR^2 or -NR^3-CO-C(=CH_2)CH_2-Y-R^1-PO$(OH)_2$.

6. (Amended) Acrylophosphonic acid according to claim 1, wherein said acrylophosphonic acid is a component of an adhesive, of a polymer, of a composite, of a cement, of a molded article or a dental material.

7. (Amended) Acrylophosphonic acid according to claim 6, wherein the dental material is a dental adhesive, a fixing cement or a filling composite.

8. (Amended) Acrylophosphonic acid according to claim 6, wherein the acrylophosphonic acid is present in at least partially polymerized form.

9. (Amended) Dental material containing an acrylophosphonic acid according to claim 1.

10. (Amended) Dental material according to claim 9, containing the acrylophosphonic acid in at least partially polymerized form.

11. (Amended) Polymers and copolymers obtained by polymerization or copolymerization of an acrylophosphonic acid according to claim 1.

REMARKS

Entry of the foregoing in advance of the initial Office Action is respectfully requested.

By the present preliminary amendment, claims 2-11 and the Abstract have been amended to conform the foreign language originating text to U.S. practice. Pursuant to 37 CFR § 1.121, attached as Appendix A is a Version With Markings to Show Changes Made.

Early allowance of the pending claims is hereby earnestly solicited.

Respectfully submitted,

Date: April 13, 2001

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Appendix A
Version With Markings to Show Changes Made

In reference to the amendments made herein to claims 2-11, additions appear as underlined text, while deletions appear as bracketed text, as indicated below:

2. (Amended) Acrylophosphonic acid according to claim 1, [characterized in that] wherein the variables of formula (I) have the following meanings independently of each other:

R^1 = a linear or branched C_1 to C_5 alkylene radical of phenylene;

R^2 = hydrogen or a linear C_1 to C_3 alkyl radical;

Y = oxygen or is absent;

X = CN or $CONR^3$ with

R^3 = hydrogen, a linear C_1 to C_6 alkyl radical, a phenyl radical or together with Z part of a six-membered ring;

n = 1 or 2; and

Z = hydrogen or a linear or branched C_1 to C_{10} alkyl radical, a phenyl radical or together with R^3 part of a six-membered ring (for n = 1); or

Z = a linear C_1 to C_{10} alkylene radical or together with R^3 part of a six-membered ring (for n = 2).

3. (Amended) Acrylophosphonic acid according to claim 2, [characterized in that] wherein the variables of formula (I) have the following meanings independently of each other:

R^1 = a linear C_1 to C_4 alkylene radical;

R^2 = hydrogen or a methyl radical;

Y = oxygen;

X = $CONR^3$;

R^3 = hydrogen or a linear C_1 to C_5 alkyl radical; and

Z = hydrogen or a linear C_1 to C_6 alkyl radical (for n = 1); or

Z = a linear C_1 to C_5 alkylene radical (for n = 2).

4. (Amended) Acrylophosphonic acid according to [one of claims 1 to 3, characterized in that] claim 1, wherein the radicals R^1, R^2, R^3 and/or Y are unsubstituted.

5. (Amended) Acrylophosphonic acid according to [one of claims 1 to 4, characterized in that] claim 1, wherein the radical Z is unsubstituted or is substituted by =O, =S, $=NR^2$ or $-NR^3-CO-C(=CH_2)CH_2-Y-R^1$ $PO(OH)_2$.

6. (Amended) [Use of the a] Acrylophosphonic acid according to claim 1, wherein said acrylophosphonic acid is [claims 1 to 5 as] a component of an adhesive, of a polymer, of a composite, of a cement, of a molded article [and] or [in particular of] a dental material.

7. (Amended) [Use] Acrylophosphonic acid according to claim 6, [characterized in that] wherein the dental material is a dental adhesive, a fixing cement or a filling composite.

8. (Amended) [Use] Acrylophosphonic acid according to claim 6 [or 7, characterized in that], wherein the acrylophosphonic acid is present in at least partially polymerized form.

9. (Amended) Dental material[, characterized in that it contains] containing an acrylophosphonic acid according to claim 1 [claims 1 to 5].

10. (Amended) Dental material according to claim 9, [characterized in that it contains] containing the acrylophosphonic acid in at least partially polymerized form.

11. (Amended) Polymers and copolymers[, characterized in that they can be] obtained by polymerization or copolymerization of an acrylophosphonic acid according to claim 1 [one of claims 1 to 5].

In reference to the amendments made herein to the abstract, additions appear as underlined text, as indicated below:

Abstract

Hydrolysis-stable and polymerizable acrylophosphonic acid with the general formula

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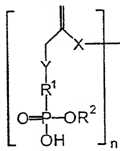

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which is particularly suitable as a component of dental materials is disclosed.